3. Descriptions of Three new Fishes discovered in the Gold Coast by Dr. H. G. F. Spurrell, M.A., F.Z.S. By G. A. Boulenger, F.R.S., F.Z.S.*

[Received October 28, 1912: Read November 12, 1912.]

(Plate III.†)

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Dr. Spurrell, who for some years has enriched our collection of living animals with many examples of Reptiles from the Gold Coast, has lately turned his attention to Fishes, and has presented two small collections to the British Museum. Among them I have found examples of what appear to me three new species. These fishes are from the vicinity of Bibianaha, near Dunkwa, between the watersheds of the Tano and Ankobra Rivers. Notes on the fresh coloration have been supplied by Dr. Spurrell.

Barbus spurrelli, sp. n. (Pl. III. fig. 1.)

Depth of body 3 to $3\frac{1}{2}$ times in total length, length of head $3\frac{1}{2}$ to $3\frac{2}{3}$ times. Snout rounded, as long as eye, $3\frac{1}{3}$ to $3\frac{1}{2}$ times in length of head, interorbital width $2\frac{3}{4}$ to 3 times; mouth subinferior; lips moderately developed; two barbels on each side, posterior as long as eye and twice as long as anterior. Dorsal III 8, equally distant from centre or anterior border of eye and from root of caudal, border feebly concave; last simple ray not enlarged, as long as head. Anal III 5, not reaching caudal. Pectoral $\frac{4}{5}$ length of head, reaching ventral; base of latter below anterior rays of dorsal. Caudal peduncle 1 to $1\frac{1}{3}$ times as long as deep. Scales radiately striated, 24–26 $\frac{3\frac{1}{2}}{3\frac{1}{2}}$, 2 between lateral line and ventral, 10 or 12 round caudal peduncle. Greenish silvery, darker on the back, the scales dark-edged or with a dark base; this dark base often more marked on the scales of the lateral line, which may be further obscured by black dots, forming an ill-defined dark lateral band; fins greyish.

Total length 75 mm.

Several specimens.

This species comes very close to *B. ablabes* Blkr.

Barilius macrostoma, sp. n. (Pl. III. figs. 2, 2 *a*.)

Depth of body equal to length of head, $3\frac{2}{3}$ times in total length. Head $2\frac{1}{2}$ times as long as broad; snout pointed, projecting beyond mouth, $1\frac{2}{5}$ times as long as eye, which is $4\frac{1}{2}$ times in

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† For explanation of the Plate see p. 53.

length of head, $1\frac{1}{2}$ times in interorbital width; mouth extending nearly to below posterior border of eye; no barbels; second suborbital deep, extending posteriorly to vertical of posterior border of eye; naked space between præoperculum and suborbital about $\frac{1}{4}$ diameter of eye. Gill-rakers few and very rudimentary. Dorsal III 8, originating at equal distance from occiput and from root of caudal; posterior third of its base above anal; anterior rays longest, a little less than $\frac{2}{3}$ length of head. Anal III 14, notched, anterior lobe rounded. Pectoral pointed, $\frac{2}{3}$ length of head, not reaching ventral, which is much shorter and reaches vent. Caudal crescentic when fully spread out. Caudal peduncle $1\frac{3}{4}$ times as long as deep. Scales with radiating striæ, 52 $\frac{11\frac{1}{2}}{6\frac{1}{2}}$, 3 between lateral line and ventral, 16 round caudal peduncle. Silvery, with 13 or 14 dark bars on the side of the body above the lateral line; dorsal fin greyish, anal reddish, caudal red with a black edge.

Total length 155 mm.

A single specimen.

This species is closely allied to *B. senegalensis* Stdr., and *B. loati* Blgr., both of which occur in West Africa. It agrees with the former in the extension of the dorsal over the anterior third of the anal and in the larger eye, but differs in the longer mouth and in the lower number of scales in the lateral line (52 instead of 59–63); with the latter it agrees in the number of scales in the lateral line, but the larger eye, the longer mouth and the position of the origin of the anal with regard to the dorsal suffice to separate it; and, finally, the number of scales in a transverse series ($\frac{11\frac{1}{2}}{6\frac{1}{2}}$ instead of $\frac{9\frac{1}{2}-10\frac{1}{2}}{4\frac{1}{2}-5\frac{1}{2}}$) distinguishes it from both its nearest allies.

Fundulus spurrelli, sp. n.

Depth of body 4 to $4\frac{1}{3}$ times in total length, length of head $3\frac{1}{3}$ to $3\frac{3}{4}$ times. Head flat above; snout short and broad, shorter than eye; mouth directed upwards; lower jaw projecting; eye $3\frac{1}{2}$ times in length of head, $1\frac{2}{3}$ times in interorbital width; space between eye and lip about $\frac{1}{5}$ diameter of former. Dorsal 13–14, originating at equal distance from head and from base of caudal, longest (posterior) rays $\frac{2}{3}$ to $\frac{3}{4}$ length of head. Anal 15–16, originating slightly in advance of dorsal. Pectoral nearly $\frac{2}{3}$ length of head, not quite reaching base of ventral, which is small and midway between end of snout and base of caudal. Caudal rounded in the female, subtruncate in the male. Caudal peduncle longer than deep. 29–31 scales in longitudinal series, 24–26 round body in front of ventrals; lateral line indicated by a more or less complete series of pits. Male pale yellowish green, with numerous narrow, often paired, vertical bars of dark carmine; sides of head metallic green, variegated with carmine; gular (branchiostegal) region of a dark, rich blue; pectoral fin whitish, with an oblique crimson streak, ventral with red tip; vertical fins grey, dotted

with carmine and broadly edged with yellow or orange, the yellow bands occupying the upper and lower fourths of the caudal. Female paler, more translucent, at times pinkish ; fins white, dorsal and anal dotted with carmine.

Total length 42 mm.

Several specimens.

Allied to *F. gardneri* Blgr.

This species will be figured in the forthcoming third volume of the British Museum Catalogue of African Freshwater Fishes.

EXPLANATION OF PLATE III.

Fig. 1. *Barbus spurrelli.*
2. *Barilius macrostoma.*
2*a*. „ „ Head from above. Natural size.

4. On some Parasites of the Scoter Duck (*Œdemia nigra*), and their Relation to the Pearl-inducing Trematode in the Edible Mussel (*Mytilus edulis*). By H. Lyster Jameson, M.A., D.Sc., Ph.D., and William Nicoll, M.A., D.Sc., M.D.

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(Text-figures 11 & 12.)

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Of the many questions connected with the formation of pearls in the common Edible Mussel (*Mytilus edulis*) the identity and life-history of the pearl-inducing organism is one of the most important. It was shown ten years ago by Jameson (1902) that the agent in this particular case is the larva of a parasitic Trematode, which, instead of secreting a cyst of its own, as is usual with such larvæ, stimulates the mussel to form around it a sac of epidermal cells. These cells possess the same physiological properties as the outer shell-secreting epidermis, and eventually, on the death of the Trematode larva, secrete conchyolin and calcareous salts, which, deposited in concentric layers around the remains of the worm, become the pearl. Attempts were made by Jameson to trace the life-history of this parasite, but the difficulties in the way of working out the complete life-cycle of digenetic Trematodes are considerable, and the results obtained by him in 1902 have not been accepted as entirely conclusive.

With regard to the parasite in *Mytilus*, the two main questions to be solved were : (1) Whence does it come ? and (2) Whither does